

REMARKS

Original claims 1 through 35 are pending in the instant application. Claims 1, 3-4, 9-12, 14-16, and 19-35 were rejected under 35 USC 102(b); claims 2, 5, 13, and 16 were rejected under 35 USC 103(a); and claims 6-7 and 17-18 were objected to but were indicated to be allowable in independent form. Claim 8 was indicated to be rejected in the Office Action Summary; however, no Detailed Action was given with respect to claim 8. Further, the Office Action Summary took no action with regard to the drawings, which are therefore deemed to be accepted.

By the above amendment, Applicant has rewritten the specification to be consistent throughout, but not adding new matter. Additionally, the claims have been amended to comport with the specification and to more particularly point out and distinctly define the invention.

The Rejection of the Claims Under § 102(b) is Overcome

Claims 1, 3-4, 9-12, 14-16, and 19-35 were rejected under 35 U.S.C. §102(b) for being anticipated by Burns et al. (U.S. Patent 4,687,539). The Burns patent discloses a system for using a laser to direct a first beam of light into a reaction chamber where a semiconductor manufacturing process is taking place. When a certain layer of material of the semiconductor surface is exposed an etching process, the resulting vaporized gas is excited by the first beam of light and fluoresces to produce a second light having a different wavelength. This second light is detected by a light detector, and the manufacturing process halts.

Independent claim 1 recites "a light detector positioned to receive pulse light *from the pulse light source*" (emphasis added). Currently amended independent claim 12 recites "a light detector to detect light in the reactor chamber *emitted from the pulse light*" (emphasis added).

The language of claim 1 and currently amended claim 12 distinguish over Burns under Section 102(b), because Burns does not disclose a light detector positioned to or otherwise intended to receive light from the light source. Burns discloses a light detector to receive light from fluorescent activity occurring in a reaction chamber. This light is specifically designated as being of a distinctly different wavelength than that which came

from the light source. The light source in Burns irradiates a light beam into the reactor chamber. If sufficient conditions in the reaction chamber permit, a fluorescent light is emitted and detected by a photomultiplier tube. Burns does not show a light detector receiving light emitted from the original light source providing the light beam into the reaction chamber.

Currently amended independent claim 23 recites "detecting *the one or more light pulses*" (emphasis added). The language of currently amended claim 23 distinguishes over Burns under Section 102(b) because "the one or more light pulses" in paragraph (b) derives its antecedent basis from the "one or more light pulses" in paragraph (a). That "one or more light pulses" in paragraph (a) are defined to have been generated from a light source and subsequently introduced into a process reactor. As noted above, Burns discloses detecting a second light originating from an event occurring in a process reactor as a result of a first light irradiated into the process reactor, not from the source of the first light itself.

Currently amended independent claim 31 recites in paragraph (b) "detecting the light event in the process reactor". The language of currently amended claim 23 distinguishes over Burns under Section 102(b) because the paragraph (b) "light event" derives its antecedent basis from the "light event" of paragraph (a), which is defined as having been generated by a light source connected to power. The light event detected in Burns is not the same as the light event described by currently amended claim 31 of the present invention. The light event in Burns is the fluorescent activity of a gas inside a process reactor, not connected to any power source, which is of a distinctly different origin than the light source of the present invention. Burns does not disclose this feature of detecting a light event that was generated by a powered light source.

The Novel Physical Features of the Claims Produce Superior and Unexpected Results and Hence are Unobvious and Patentable over Burns and Filo Under § 103(a)

The distinctions claimed are submitted to be of patentable merit under Section 103(a) because the novel physical features of claim 1 and currently amended claims 12, 23, and 31 produce superior results by eliminating the usual long-standing problem of a 1-3% variation in light output (pulse-to-pulse) seen in conventional light systems.

Applicant's system and method therefore are vastly superior to Burns and hence are unobvious and patentable over Burns in view of Filo.

The Examiner rejected claims 2, 5, 13, and 16 as being unpatentable over Burns in view of Filo (U.S. Patent 5,705,808). Filo discloses a device for reducing the current to a flash tube after an amount of light has been emitted from the tube. However, Filo does not disclose a complete cut off of current to the light source, and in fact states such a cut off to be "not practical" and further notes that "instead of completely shutting off the flash tube 103, the electric current to the flash tube 103 is shunted..." (See column 4, lines 10 to 14.) Therefore, the novel physical features of the claims of the present application produce unexpected results in view of Filo and hence are unobvious and patentable over these references.

The Dependent Claims Are A Fortiori Patentable Over Burns And Filo

Claims 2-11 are dependent upon independent claim 1 and are thus patentable for the same reasons given with respect to claim 1, and more so, since they add additional limitations.

Claims 13-22 are dependent upon currently amended independent claim 12 and are thus patentable for the same reasons given with respect to currently amended claim 12, and more so, since they add additional limitations.

Claim 27 and currently amended claims 24, 25, 26, 28, 29, and 30 are dependent upon currently amended independent claim 23 and are thus patentable for the same reasons given with respect to currently amended claim 23, and more so, since they add additional limitations.

Claim 32 and currently amended claims 33, 34, and 35 are dependent upon currently amended independent claim 31 and are thus patentable for the same reasons given with respect to currently amended claim 31, and more so, since they add additional limitations.

Dependent claim 8, while not acted on in the Detailed Action portion of the Office Action of December 4, 2002, is submitted to be patentable over both Burns and Filo for the reasons set forth above, and particularly in view of claims 6-7 and 17-18 being indicated as allowable by the Examiner in independent form.

Conclusion

If the Examiner believes a conference with Applicant's attorney would expedite or conclude prosecution of this application, he is cordially invited to contact Applicant's attorney by telephone.

Applicant respectfully submits that claims 1-35, as originally submitted and as currently amended, are clearly allowable for the reasons stated herein and therefore request such allowance.

Respectfully submitted,



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